

# Lover's Canyon Project Description

The Salmon/Scott River Ranger District of the Klamath National Forest proposes the Lover's Canyon Project to improve forest health and diversity, improve threatened and endangered species habitat, implement objectives of the Lower Scott River Fire Safe Council Community Wildfire Protection Plan, and provide commodity outputs. This proposal treats about 2,700 acres within the 11,810 acre project boundary.

The Lover's Canyon Project is proposed within the Boulder, Canyon, and Kelsey Creek watersheds of the Scott River Ranger District of the Klamath National Forest. It is located in Siskiyou County approximately 15 miles west of Fort Jones, California, in Sections 25 and 36 of Township 44 North, Range 12 West; Sections 19, 21, and 25-35 of Township 44 North, Range 11 West; Section 1 of Township 43 North, Range 12 West; and Sections 2-8 of Township 43 North, Range 11 West, all Mt. Diablo Meridian. Elevation ranges from about 2,300 to 6,900 feet.

The project is being conducted under the authority of the Healthy Forests Restoration Act (HFRA). Section 102(a) of the act describes authorized projects under HFRA. This project meets two of the five criteria in that section: projects taking place within the wildland urban interface, and projects containing threatened and endangered species habitat. The project area contains 6,371 acres of wildland urban interface, and the entire project area is within designated Critical Habitat for the northern spotted owl (NSO).

## Management Direction

The 1995 Klamath National Forest Land and Resource Management Plan (Forest Plan, as amended; Klamath National Forest 1995) includes Standards and Guidelines from the Northwest Forest Plan. The Forest Plan provides forest-wide and management area (MA) direction for project-level projects. MAs within the project area are shown in Table 1.

**Table 1. MAs found within the project boundary.**

Management Area	Pages in Forest Plan*	Acres within Project Area	Percentage of Project area (%)
MA 15- Partial Retention Visual Quality Objective (VQO)	4-126 to 4-127	5,106	43%
MA 10- Riparian Reserves (RRs)	4-108 to 4-114	2,948	25%
MA 5- Special Habitat	4-82 to 4-94	1,253	11%
MA 11-Retention VQO	4-115 to 4-116	703	6%
MA 13- Recreational River	4-120 to 4-122	353	3%
MA 17-General Forest	4-131 to 4-132	342	3%
Private Lands Within Project Area	N/A	1,105	9%

\* Page numbers from the July 29, 2010 version of the Forest Plan. Accessed online at <http://www.fs.usda.gov/main/klamath/landmanagement/planning>.

In addition to Forest Plan direction, the interdisciplinary team (IDT) considered guidance from mid-level assessments or guidance documents, including the Canyon Ecosystem Analysis (also known as a Watershed Analysis, WA; Klamath National Forest 1994). The project area also contains about 1,950 acres of inventoried roadless areas and 6,371 acres of wildland urban interface. The inventoried roadless areas are being avoided with the project design. A majority of the commercial treatment acres fall within the wildland urban interface. The project falls within a high use recreation area and includes three trailheads, two developed campsites, and multiple dispersed campsites.

The IDT designed the Lover's Canyon Project to be consistent with all applicable law, regulation, policy, and direction.

## Lover's Canyon Project Purpose and Need for Action

The purpose and need of this project is to manage the Lover's Canyon Project landscape so that individual landscape elements and patterns are resilient to ecological processes occurring on the landscape scale, including wildfire, while managing for certain habitat characteristics, such as those for the NSO, visual objectives, and sustainable resource outputs. Through collaboration with the Lower Scott River Fire Safe Council, a second purpose was identified. This second purpose is to implement objectives outlined in the Lower Scott River Community Wildfire Protection Plan (Lower Scott River Fire Safe Council, 2007). This action is needed since a resilient landscape is a diverse one, where no single element being removed from the ecosystem will affect the entire system. One measure of diversity on a landscape level is the stand structural class, expressed as a percentage of the landscape it covers as determined using Pacific Southwest Region's remote sensing data. This shows that much of the project area is in the small (11- to 24.9-inch diameter at breast height, dbh) conifer structural class. Change is needed to develop a more diverse and resilient landscape.

The Canyon WA was prepared to provide a means by which the landscape can be understood as an ecological system, to use this knowledge to help shape the landscape patterns created through National Forest land management activities, and to provide recommendations consistent with the Forest Plan. The Canyon WA describes desired conditions for stand structural classes.

**Table 2. Desired condition range and existing condition of the structural classes within the project area.**

Structural Class	Desired Condition Range*	Existing Condition
Seedling/Sapling (0- to 5.9-inch dbh)	5 to 15%	6%
Poles (6- to 10.9-inch dbh)	10 to 20%	7%
Small Conifer (11- to 24.9-inch dbh)	15 to 35%	46%
Medium/Large Conifer (>25-inch dbh)	40 to 60%	38%

\*As defined in the Canyon WA (page 48).

As seen in Table 2, the landscape is currently lacking in "pole" and "medium/large conifer" stands, while nearly fifty percent of the existing stands are in the "small" conifer class. The purpose and need for action is to accelerate the development of "small" conifer stands, moving them into the "medium/large" size classes to fall within the range of desired conditions for the landscape. These

ranges, along with individual element descriptions, are designed to be consistent with landscape-scale processes; provide a variety of habitat values; provide a variety of opportunities for human uses; as well as sustainable and predictable levels of resource outputs (US Forest Service 1994). This action responds to the goals and objectives outlined in the Forest Plan, and helps move the project area towards the desired future conditions described in that plan (Forest Plan, Chapter 4, pages 4-14 to 4-16).

## **Proposed Action**

The Forest Service proposes this project to meet the purpose and need. The proposed action will treat approximately 2,700 acres within the 11,810 acre project boundary. Acres by treatment type are described below and do not account for the overlap in treatment types. RRs within and adjacent to treatment units will be evaluated on a site-by-site basis for treatment, and will include equipment and treatment exclusion zones. Treatment acreages are approximate at this point and may be adjusted and refined following scoping.

Treatments would include thinning on up to 2,400 acres; creating fuel breaks on about 190 acres; removal of hazard trees along National Forest System (NFS) roads, county roads, campgrounds, and other high use recreation areas within the project boundary; and prescribed burning. Time frame for implementation of all aspects of this project is estimated to take about 10 years.

Thinning prescriptions will be developed on a stand-by-stand basis to meet the objectives of the purpose and need. However, in general the prescription will be a variable density thinning from below, focusing on stands in the small conifer structural class. Of the 2,700 acres selected for potential treatment, more than half are existing plantations (about 1,700 acres). The remaining area is made up of previously managed natural stands. At this time, the Forest Service is proposing to accomplish these treatments through hand and mechanical thinning with ground-based and skyline logging systems, while hand piling, lop and scattering, or biomass harvesting is proposed in existing plantations. Activity fuels within harvest units will be hand piled, landing piled, and made available for biomass or permitted public fuelwood collection prior to burning. As the project is proposing to enter previously managed stands, no new road construction is proposed. Existing NFTS roads and existing roadbeds will be used for project implementation. Existing roadbeds will also be used for temporary access, and then will be closed and hydrologically stabilized following unit treatments. No new temporary access roads will be created outside of harvest units.

There would be three types of fuel breaks created within the project area: one ridge line fuel break of about 40 acres, a fuel break above private property in the project area of about 11 acres, and roadside fuels reduction for escape routes on private property of about 140 acres. Fuel breaks would vary in width depending on the site condition. The ridgeline fuel break would be up to 200 feet either side of a road system on the ridge line (NFS Road 44N55). Private property fuel breaks would be up to 200 feet upslope of private property. The roadside fuel breaks would be up to 200 feet either side of identified NFS and county roads. The fuel break treatments would involve cutting and piling of ladder fuels, including brush, hardwoods, and conifer trees less than 10 inches dbh.

At this time, one prescribed burning block of about 165 acres is being proposed. It would be accomplished where multiple harvest treatments overlap and road systems create logical control features. For most of the 165 acres, it would be a second entry with prescribed fire, following up on previous NEPA decisions. Other opportunities for prescribed burning are still being assessed.

## Project Design Features

The Forest Service developed the following project design features (PDFs) to address overall project objectives, to minimize resource impacts, and ensure Forest Plan and/or legal compliance. Table 3 below displays the PDFs developed for this project along with the applicable area(s).

**Table 3. Project design features.**

Design Feature	Description	Applicable Area(s)
AIR-1	A wetting agent (such as water or magnesium chloride) will be applied as needed to decrease or eliminate dust generated from timber hauling on native surface roads.	Where needed
AIR-2	<ul style="list-style-type: none"> <li>- Burn during favorable weather conditions when smoke is transported away from sensitive locations. Ignitions will be slowed or stopped when changing conditions cause intrusions of smoke into sensitive areas. Forecasts of weather in the project area will be used to ensure favorable "within prescription" weather conditions for the burn and for smoke transport.</li> <li>- Ignition will only take place on permissive burn days as determined by the California Air Resources Board, and the Siskiyou County Air Pollution Control District.</li> <li>- Burning will meet all Federal, State and Local guidelines as administered by the Siskiyou County Air Pollution Control District.</li> <li>- When possible, schedule burning to minimize impacts to those recreating. This may involve burning on low visitor use days in the spring and avoiding burning on high use weekends.</li> </ul>	All Pile and Underburn Units
ARCH-1	Any Historic Properties identified within the project area will be managed in accordance with the guidelines set forth in the <i>First Amended Regional Programmatic Agreement Among the USDA Forest Service, Pacific Southwest Region, California State Historic Preservation Officer, and Advisory Council on Historic Preservation Regarding the Process for Compliance with Section 106 of the National Historic Preservation Act for Undertakings on the National Forests of the Pacific Southwest Region (PA)</i> .	Entire Project Area
ARCH-2	Standard Resource Protection Measures for all Historic Properties located within the Area of Potential Effect (APE) for this undertaking include the physical demarcation of site boundaries and avoidance of all sites during implementation of the undertaking.	Entire Project Area
ARCH-3	If it is determined during the planning process that Historic Properties located within the APE cannot be avoided during project implementation, and the undertaking as proposed has the potential to effect Historic Properties eligible or potentially eligible for inclusion in the National Register of Historic Places, then the Klamath National Forest will consult with the California Office of Historic Preservation regarding the determination of effect for the proposed undertaking.	Entire Project Area
ARCH-4	All appropriate Native American groups will be consulted regarding the proposed project design elements throughout the planning process prior to project implementation. Such consultation will be conducted pursuant to Section 106 of the National Historic Preservation Act.	Entire Project Area

<b>Design Feature</b>	<b>Description</b>	<b>Applicable Area(s)</b>
ARCH-5	If any late discoveries of human remains or sites not previously recorded are identified during the project implementation, work in the immediate area will stop and the District Archaeologist and Heritage Program Manager will be contacted.	Entire Project Area
ENG-1	Every road used for the project will be maintained in a condition to allow drainage features to function, during and post project.	Entire Project Area
ENG-2	Many of the roads within the project area have been storm-proofed to meet the 100 year flood. Post-haul maintenance will be done to ensure that road surfaces and drainage features are functioning to prevent diversion of stream flow out of the channel and down the road.	Entire Project Area
ENG-3	Evaluate all roads in the project area for needed improvements.	Entire Project Area
ENG-4	Ensure that post-haul maintenance reestablishes drainage features.	Entire Project Area
ENG-5	To the extent possible, remove all roadside hazard trees within project area and haul-routes.	Entire Project Area
ENG-6	Protect and maintain existing improvements within the project area.	Entire Project Area
ENG-7	Road maintenance on system roads may be needed prior to and during harvest activities. Maintenance activities include clearing of brush and small trees within the road right-of-way, surface blading to provide a smooth road and water drainage control, and dust abatement.	Entire Project Area
FUEL-1	Treat activity-generated fuels through a variety of methods including prescribed burning, hand piling, and tractor piling.	Entire Project Area
FUEL-2	Enhance and protect private property with fuels treatments; i.e. treat fuels in the wildland urban interface.	Entire Project Area
FUEL-3	Provide effective fuelbreaks including roadside access (ingress/egress) for public and firefighter safety.	Entire Project Area
FUEL-4	Utilize natural features such as ridgelines, streams, and rock outcroppings for prescribed burning; also utilize road systems and handlines to burn harvest units.	Entire Project Area
FUEL-5	Build no piles within 50 feet of the paved section of NFS Road 44N45.	Road 44N45
FUEL-6	Non-commercial plantations too large for handpiling (8 inches or larger dbh) should be analyzed for mechanical thinning.	All Non Commercial Plantations
FUEL-7	In skyline harvest units with planned post underburn, yard non-merchantable materials to landing piles.	All Skyline Units
FUEL-8	Lop/scatter plantations within planned underburn units.	Entire Project Area

<b>Design Feature</b>	<b>Description</b>	<b>Applicable Area(s)</b>
FUEL-9	All landing piles and biomass fuels should be utilized in the following priority: biomass, firewood, and burning (based on feasibility).	Entire Project Area
FUEL-10	Schedule and prioritize pre-commercial plantation thinning with fuels and silviculture departments. Each separate compartment (Boulder, Lovers, and Kelsey) should be scheduled for treatment based upon no less than two-year intervals so that handpile construction does not occur all at once.	Entire Project Area
FUEL-11	Remove dangerous snags around high use road systems and campgrounds/trailheads in the project, according the regional hazard tree policy, and handpile activity fuels.	Entire Project Area
FUEL-12	Collaborate with Local Fire Safe Council working group to ensure project is consistent with Community Wide Protection Plan.	Entire Project Area
NOX-1	There will be no landing construction within noxious weed infestation CADR-5.	Plantation #144
NOX-2	Avoid parking equipment and vehicles in within any noxious weed infestations.	Entire Project Area
NOX-3	If landings are needed within a Dyer's woad infestation; consult with the botanist to determine the best location. If a landing is placed in a location that is infested, equipment will be used to push the top layer of soil with the seed bank into a pile away from where equipment and vehicles will be operating prior to use of the landing.	Entire Project Area
NOX-4	Avoid creating burn piles directly within any noxious weed infestations; fuels may be removed by hand from within infestations and piled outside the flagged area.	Units #10, 11, 13, 23, 23*, 35, 63, 100, 114, 130, and 144
NOX-5	Avoid setting equipment and/or cable corridors directly over noxious weed infestations.	Units #54, 55, G, and F
NOX-6	Avoid skidding directly through noxious weed infestations.	Units #82 and 98
NOX-7	Equipment will be cleaned of soil, seeds, vegetative matter, and other debris that could contain or hold seeds prior to moving to the project area, after operating within an area with a known site, and after leaving the project area.	Entire Project Area
NOX-8	Wherever seed and/or straw is used to restore areas of ground disturbance, certified weed free seed and straw would be specified in the contract.	Entire Project Area
REC-1	Unit 144 will be treated by Forest Service crews with direct oversight by District recreation staff to ensure scenic and recreational values are preserved at the Lover's Camp trailhead, corral, and campground.	Unit 144
REC-2	Leave a 50-foot no treatment buffer around any trail corridor, developed site, or trailhead.	Entire Project Area
REC-3	Haul routes shall utilize the NFS Road 44N41 and avoid Canyon Creek Road whenever possible.	Entire Project Area

<b>Design Feature</b>	<b>Description</b>	<b>Applicable Area(s)</b>
REC-4	No hauling shall occur on Friday – Sunday on the Canyon Creek Road, or during any holidays, specifically July 4 <sup>th</sup> , Labor Day, and Memorial Day.	Entire Project Area
REC-5	No pile burning will occur in the vicinity of recreation sites after May 1 <sup>st</sup> .	Entire Project Area
REC-6	Avoid creating landings on turnouts on the Canyon Creek Road, particularly at the creek crossing near Unit 110.	Entire Project Area
SCENERY-1	Utilize parallel cable sets. Minimize cable corridor widths (i.e. 10-12 feet). No visible tree mark paint on trees after implementation as seen from NFS Road 44N45 to 100 feet from edge of road.	All Skyline Units
SCENERY-1	No visible tree mark paint on trees after implementation as seen from NFS Roads 43N45 or 44N45 to 100 feet from edge of road. No skid trails visible from road.	Units 42, 53, 54, 23, 63, 52, 59, 146, 10, 96, 92, 98, 6, 14, 97, 15, 49, 20, 19, 144, & 25
SCENERY-1	No skid roads or log skidding across trails. Retain all vegetation (no cut) within 50 feet on both sides of trails. Retain all vegetation (no cut) within a 50 feet radius of each picnic table. Flush cut all stumps visible from picnic tables.	Units 5, 33, 144, & 28
SILV-1	Thinning prescriptions will be developed on a stand-by-stand basis to meet the objectives of the purpose and need and, in general, the prescription will be a variable density thinning from below, focusing on stands in the small conifer structural class.	All Non-Plantation Units
SILV-2	In order to reduce damage to leave trees, to the extent possible, maximize the use of parallel corridor settings in skyline harvest units.	All Skyline Units
SILV-3	In general, the project will focus largely on small diameter trees, thinning, strategic fuel breaks, and prescribed fire to modify fire behavior, as measured by the projected reduction of uncharacteristically severe wildfire effects for the forest type (such as adverse soil impacts, tree mortality or other impacts); and maximizes the retention of large trees, as appropriate for the forest type, to the extent that the trees promote fire-resilient stands.	Entire Project Area
WILD-1	Marking crews will coordinate with a wildlife biologist to ensure suitable NSO habitat is retained as described in the unit specific prescriptions and green cards.	Entire Project Area
WILD-2	A seasonal restriction of February 1 to September 15 will apply to all activities that modify habitat (including activities that degrade or are beneficial) within 0.25 mile of a NSO activity center or unsurveyed nesting/roosting habitat. The limited operating period (LOP) may be lifted if protocol surveys determine NSOs are not nesting in the year of action.	Entire Project Area

<b>Design Feature</b>	<b>Description</b>	<b>Applicable Area(s)</b>
WILD-3	For areas not in suitable habitat but will potentially have noise-producing activities that are above ambient noise levels within 0.25 miles of an occupied NSO activity center or unsurveyed suitable nesting/roosting habitat, a seasonal restriction will be applied from February 1 thru July 9. LOP may be lifted if protocol surveys determine NSOs are not nesting in the year of action.	Entire Project Area
WILD-4	If surveys are to be implemented, follow current NSO protocol guidance.	Entire Project Area
WILD-5	In order to not treat more than 50% of an occupied NSO home range within any given year: Within occupied or unsurveyed suitable habitat, no more than 50% of the nesting, roosting, or foraging habitat will be burned or mechanically treated in a single year in any one 7th-field.	Entire Project Area
WILD-6	No more than 50% of suitable NSO habitat within an NSO 0.5-mile core will be underburned in a given year.	Entire Project Area
WILD-7	Maintain existing snag and large down log levels across the landscape where fuel loading is not excessive; however, do not go below Forest Plan standards for snags and logs per acre (Klamath National Forest Plan 1995, Chapter 4, Standard & Guideline 8-25, page 4-39).	Entire Project Area
WILD-8	When burning in spring, manage smoke so that light to moderate dispersed smoke may be present within a canyon or drainage but dissipates or lifts within 24 hours. When spring burning is conducted within 0.25 mile and uphill of a known NSO activity center or within 0.25 mile of unsurveyed nesting/roosting habitat (separated by a topographic feature), smoke is managed as described above, and ignition should be discontinued if heavy, concentrated smoke begins to inundate suitable habitat late in the afternoon	Entire Project Area
WILD-9	No known bald eagle nest trees, perch trees, or roost trees within winter roots areas will be removed or destroyed as a result of prescribed fire or fuels reduction activities if discovered.	Entire Project Area
WILD-10	To minimize smoke effects on bald eagles, prescribed burning will not occur in or within 0.5 mile of a known or suspected nest territory from January 1 to August 31, or a known or suspected winter roost area from November 1 to March 31 if discovered. If surveys demonstrate that nest sites are not active, no seasonal restrictions are required.	Entire Project Area
WILD-11	Activities that create noise above ambient levels within 0.25 mile of active or suspected bald eagle nests if discovered, or occur within 0.5 mile line-of-sight of such nests, will be seasonally restricted from January 1 to August 31. If surveys demonstrate that bald eagles nest sites are not active, no seasonal restrictions are required.	Entire Project Area
WILD-12	Activities that create noise above ambient levels within 0.25 mile of an active or suspected bald eagle winter roost, or occur within 0.5 mile line-of-sight of such roosts, will be seasonally restricted from November 1 to March 31 if discovered. If surveys demonstrate that roosts are not being used, no seasonal restrictions are required.	Entire Project Area
WILD-13	In known occupied northern goshawk nest sites and management areas, no burning or use of heavy equipment will occur within 0.25 mile of the nest site	Entire Project Area

<b>Design Feature</b>	<b>Description</b>	<b>Applicable Area(s)</b>
	between March 1 and August 31. If protocol surveys are conducted and the site is found to be unoccupied, proposed actions may proceed.	
WILD-14	In order to avoid direct harm to individual Siskiyou Mountain and Scott Bar salamanders in occupied sites or areas modeled has having moderate or high likelihood of occupancy, implement burning when salamanders have low likelihood of being surface active.	Entire Project Area
WILD-15	Avoid use of heavy equipment on known Siskiyou Mountain and Scott Bar salamander sites or on suitable talus that has a moderate or high likelihood of occupancy.	Entire Project Area
WILD-16	Treatment units containing suitable Siskiyou Mountain and Scott Bar salamander habitat will be flagged and avoided; flagged areas will be utilized as "skips" considered in variable density thinning prescriptions.	Entire Project Area
WILD-17	Greater than 60% canopy cover existing of the larger mature trees, large down woody debris, and sufficient forest floor litter will be retained within and adjacent to known sites of Tehama chaparral and blue gray tail dropper.	Entire Project Area
WILD-18	Heavy equipment will not be used on talus slopes to protect Tehama chaparral and blue gray tail dropper.	Entire Project Area
WILD-19	Treatment units containing suitable Tehama chaparral and blue gray tail dropper habitat will be flagged and avoided; flagged areas will be utilized as "skips" considered in variable density thinning prescriptions.	Entire Project Area
WILD-20	Recommend direction felling away from retained hardwoods to minimize logging damage.	Entire Project Area
WILD-21	Recommend directional felling away from meadows. Minimize equipment use on sensitive meadow habitats.	Entire Project Area
WS-1	All RRs, landings, water sources, and temporary roads will be illustrated on the Sale Area Map.	Entire Project Area
WS-2	When working in RRs, including skid trail crossings: When there is a 30 percent chance of rain in the next 24 hours the timber sale administrator will be on site to insure that winterization or erosion control procedures are implemented in a timely fashion and to initiate shutdown or resume operations. Operations will not resume until suitable weather, soil, and forecast conditions exist. Skid trails that cross intermittent streams or dry swales (i.e. depressions in the landscape that do not meet definition for a designation as an RR) will be restored before any storm (with reasonable chance of causing offsite sediment movement), or after use is complete. This generally consists of removing excess soil, reshaping and waterbarring former approaches, and spreading slash on the former crossing.	All Ground-based Units
WS-3	Cable corridors will be placed so that they do not run up the axis of active landslides or inner gorges.	All Skyline Units

<b>Design Feature</b>	<b>Description</b>	<b>Applicable Area(s)</b>
WS-4	Tractors and mechanical harvesters will be excluded from the unstable land component of RRs including active landslides, toe zones of landslides, inner gorges, and steep-dissected granitic ground.	All Ground-based Units
WS-5	Skidding equipment will be restricted to slopes less than 35 percent. Skid trails that connect benches separated by short steep slopes (broken ground) can have minor portions of the skid trails on slopes greater than 35 percent.	All Ground-based Units
WS-6	Mechanized, tracked, harvesting equipment will be restricted to slopes less than 45 percent in stands where tractor skidding is used and, where practical, logs should be placed in bundles on slopes less than 35 percent. Mechanized harvesting equipment will be restricted to travelling in straight up and down patterns on slopes above 35 percent.	All Ground-based Units
WS-7	Maintain existing coarse woody debris by having ground-based equipment avoid the larger diameter logs as much as practical.	All Ground-based Units
WS-8	Perennial streams will not be crossed by skid trails. Intermittent channels may be crossed when dry and at locations designated by the Forest Service.	Entire Project Area
WS-9	Limit equipment disturbance within 20 feet on either side of swales by minimizing equipment crossings and avoiding running trails up the axis of swales. Swales are shallow ephemeral channels that do not meet the definition of a RR because they lack annual channel scour.	Entire Project Area
WS-10	Skid trails will be located to minimize impacts to RRs. Skid trails will not be placed in RRs except at designated crossings (see PDF WS-8).	All Ground-based Units
WS-11	Existing skid trails will be reused whenever possible. Designation of new skid trails will be approved by Timber Sale Administrator. Use existing skid and swing trails instead of building new skid trails unless using existing skid trails will have greater negative effects than building new. Use no skid trails in areas (1) in which ground-based mechanical equipment is excluded; and (2) on highly erosive soils, unstable areas, wetlands, or meadows (excluding small springs and seeps).	All Ground-based Units
WS-12	Take-offs of skid and swing trails that intersect roads will be obliterated or effectively blocked to vehicle access following unit treatment.	All Ground-based Units
WS-13	Ground-based skidding will require front-end suspension of logs on skid trails.	All Ground-based Units
WS-14	No full bench skid trails will be constructed. (Full bench skid trails have the entire skid trail cut into the hill slope).	All Ground-based Units
WS-15	Slash or water bars will be applied to corridors where necessary to minimize the concentration of surface runoff and where the ground cover is below 50 percent.	All Skyline Units
WS-16	Place corridors for skyline-yarding outside stream RRs parallel to the stream channel unless field assessment by earth scientist and sale administrator determines that placing them within the RR will not substantially damage	All Skyline Units

Design Feature	Description	Applicable Area(s)
	residual trees, soil, or fish.	
WS-17	No more than 15% of a harvest unit should be disturbed by cable corridors, swing trails, and landings.	All Skyline Units
WS-18	Some end lining will be implemented on steeper slopes (greater than 35 percent).	All Ground-based Units
WS-19	All skyline yarding stands will require one end suspension. Full suspension will be required for any yarding across or over streams.	All Skyline Units
WS-20	Skid and swing trails will be waterbarred and/or covered in slash to prevent concentration of surface runoff and prevent runoff from the road from entering the swing trails. At project completion, permanent operating water bars will be installed and/or repaired as necessary on all skid trails, and slash scattered on all skid trails if necessary.	Entire Project Area
WS-21	Where logs cannot be adequately suspended for yarding, gouging in corridors will be waterbarred and covered with logging slash as needed to mitigate erosion and concentration of surface runoff.	All Skyline Units
WS-22	Construct new landings outside both stream-course and unstable-land RRs and away from locations where sediment is likely to enter streams (areas that have a hydrologic connection to streams).	Entire Project Area
WS-23	Existing landings will be used to the extent possible. Existing landings within 50 feet of the slope break to a stream channel or inner gorge will not be used.	Entire Project Area
WS-24	No landings will be constructed within the RR.	Entire Project Area
WS-25	At Project conclusion, landings will be closed and configured for long-term drainage, stability, and restored to productivity.	Entire Project Area
WS-26	Operate according to the Forest's Wet Weather Operation Standards (US Forest Service 2002).	Entire Project Area
WS-27	During reconstruction of any landings, material will not be sidecast.	Entire Project Area
WS-28	Naturally fallen or felled hazard trees may be removed from RRs if A) Trees must be removed to provide safe road passage or campground access; or B) The trees will pose a substantial risk to the forest road drainage system integrity, and C) A fisheries biologist determines through site inspection and written documentation that removal of individual hazard trees within interim RRs is not inconsistent with the Aquatic Conservation Strategy Objectives.	Entire Project Area
WS-29	The project is proposed to take place during the normal operating season (NOS) that is defined as April 15 to October 15 and in dry periods outside the NOS with Line Officer approval. Actions will be restricted during periods of wet weather during the NOS.  Exceptions:  To minimize disturbance to fish, no ground-disturbing activities will occur	Entire Project Area

Design Feature	Description	Applicable Area(s)
	<p>within the RR of fish-occupied stream segments between October 15th and May 15th.</p> <p>To minimize effects to anadromous fish, including spawning, egg incubation, and just-hatched fry, no in-stream activities, including water drafting, will occur in anadromous stream segments between October 15th and June 15th.</p>	
WS-30	Trees directly rooted into the banks or otherwise and obviously integral to the stability of the channel bank will not be removed.	Entire Project Area
WS-31	Directional felling will be used to protect streambanks.	Entire Project Area
WS-32	For those pre-commercial thin and release and/or fuel reduction units within RRs, and where currently over 80% shade exists, at least 80% shade on the water will be maintained after thin/release operations.	Entire Project Area
WS-33	Temporary road take-offs will be obliterated or effectively blocked to vehicle access.	Entire Project Area
WS-34	Proposed temporary roads on existing road beds will be outsloped, covered with slash if needed and blocked after the harvest season (prior to the first winter after use). As needed, the temporary roads will be decommissioned (hydrologically restored) at project completion (road decommissioning includes removal of culverts and fills at stream crossings, out-sloping of road surfaces, and obliteration).	Entire Project Area
WS-35	Use temporary roads on existing roadbeds instead of constructing new temporary roads except: (1) when temporary roads on existing roadbeds are located within stream-course RRs (unless the only way to access the unit will be to use a stream crossing on an existing roadbed); or (2) when temporary roads on existing roadbeds are located on highly erosive soils, unstable areas, wetlands or meadows (excluding small springs and seeps).	Entire Project Area
WS-37	Improvements on the existing roads to the project area will not over-steepen the failed road cuts, will minimize sidecasting, and maintain the ditches and cross drains or any outslope of the roadway.	Entire Project Area
WS-38	Spot rocking will used as necessary if small and isolated portions of the road system do not adequately dry to allow haul when most of the road is capable of haul. This will occur, providing haul over the newly rocked areas will not create adverse impacts, such as sediment moving offsite towards channels.	Entire Project Area
WS-39	Appropriate road watering will be implemented as roads dry to maintain road fines on site.	Entire Project Area
WS-40	<p>When in fish-bearing (anadromous) waters:</p> <p><i>NOAA Fisheries Water Drafting Specifications</i></p> <p>When in habitat potentially occupied by Chinook and coho salmon, intakes will be screened with 3/32" mesh for rounded or square openings, or 1/16" mesh for slotted openings. When in habitat potentially occupied by steelhead trout, intakes will be screened with 1/8" mesh size. Wetted surface area of the screen or fish-exclusion device shall be proportional to the pump rate to ensure that water velocity at the screen surface does not</p>	Water Drafting Sites

Design Feature	Description	Applicable Area(s)
	<p>exceed 0.33 feet/second.</p> <p>a. Use of a NOAA approved fish screen will ensure the above specifications are met.</p> <p>Fish screen will be placed parallel to flow.</p> <p>Pumping rate will not exceed 350 gallons-per-minute (gpm) or 10% of the flow of the anadromous stream drafted from.</p> <p>Pumping will be terminated when tank is full.</p> <p>Additional applicable specifications:</p> <p>Water drafting by more than one truck shall not occur simultaneously.</p> <p>When in fish-bearing (non-anadromous) waters:</p> <p>Drafting rate should not exceed 350 gpm for streamflow greater than or equal to 4.0 cubic-feet-per-second (cfs).</p> <p>Below 4.0 cfs, drafting rates should not exceed 20 percent of surface flows.</p> <p>Drafting should cease when bypass surface flows drop below 1.5 cfs.</p> <p>Intakes, for trucks and tanks, shall be placed parallel to the flow of water and screened, with opening size consistent with the protection of aquatic species of interest.</p> <p>Screen sizes are not provided by BMPs. It is the best judgment of the fish biologist that screen sizes described by NOAA specifications for steelhead (1/8" mesh size) are applicable for rainbow trout.</p> <p>Water drafting by more than one truck shall not occur simultaneously.</p> <p>When drafting from non-fish-bearing waters:</p> <p>Drafting rate should not exceed 350 gallons per minute for stream flow greater than or equal to 2.0 cfs.</p> <p>Drafting rate should not exceed 50 percent of surface flow.</p> <p>Drafting should cease from when bypass surface flow drops below 10 gpm.</p> <p>Drafting by more than one truck shall not occur simultaneously.</p>	
WS-41	Water drafting sites, located in non-fish-bearing waters only, may include minor instream modification, such as fine sediment removal and building of board/plastic dams, at the discretion of the Project Fish Biologist or Hydrologist. All boards and plastic will be removed after use.	Water Drafting Sites
WS-42	Water drafting sites located within fish-bearing stream segments may not be modified, except rocking the approach to prevent sedimentation.	Water Drafting Sites
WS-43	Draft water only at designated water drafting sites.	Water Drafting Sites
WS-44	Fueling and servicing of vehicles used for proposed activities will be done outside of RRs.	Entire Project Area
WS-45	No fueling/refueling of mechanical equipment will occur within 100 feet of any flowing watercourse or intermittent drainage.	Entire Project Area

<b>Design Feature</b>	<b>Description</b>	<b>Applicable Area(s)</b>
WS-46	Report spills and initiate appropriate clean-up action in accordance with applicable State and Federal laws, rules, and regulations. The Forest hazardous materials coordinator's name and phone number shall be available to Forest Service personnel who administer or manage activities utilizing petroleum-powered equipment.	Entire Project Area
WS-47	In the occurrence of a spill that may affect listed aquatic species, NOAA Fisheries will be notified for emergency consultation.	Entire Project Area
WS-48	A spill containment kit will be in place where refueling and servicing take place.	Entire Project Area
WS-49	Where necessary, effective soil cover (mulch, woody debris, rock, vegetation, blankets) will be provided on exposed soil surfaces for both short- and long-term recovery; and disturbed areas will be re-vegetated	All Harvest Units
WS-50	Post treatment soil cover will range from 50-70 percent depending on slope steepness and fuel reduction treatments.	Entire Project Area
WS-51	<p>Handpile construction: Place in a checkerboard pattern whenever possible (do not place one pile directly above another).</p> <p>Handpiles must be small in size, six feet or less in diameter.</p> <p>No handpiles will be placed within 15 feet of any perennial or intermittent stream channel.</p> <p>Between 15 and 30 feet of any perennial or intermittent stream channel, handpiles may be constructed only if one of the following conditions exist: (1) not in granitic soils, (2) slopes are less than 35%, or (3) ground cover is greater than 50%. If these conditions cannot be met, then slash should be lopped and scattered.</p>	Entire Project Area
WS-52	Prescribed fire effects in RR will mimic a low intensity backing fire, except for handpiles where higher intensity may occur to consume pile material. Ignition of underburns will generally not occur in RRs, except to minimize the potential for burning material to roll down into a RR that would increase the potential for moderate or high intensity burns. Approval by the District Fish Biologist is needed for underburn RR ignitions.	All Underburn Units
WS-53	For underburning, construction of handlines in RRs closer than 25 feet to a watercourse shall be avoided where practical. Handline construction in riparian vegetation shall be avoided where practical. Handlines will be mitigated (waterbarred and covered with organic material) immediately following prescribed burning, when safe to do so.	All Underburn Units
WS-54	When underburning in RRs, at least 90% of the large woody debris will not be consumed, both standing and on the ground.	All Underburn Units

## References

- Klamath National Forest. 1994. *Canyon Ecosystem Analysis*. Yreka, CA: Klamath National Forest.
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- Klamath National Forest. 2002. *Klamath National Forest Wet Weather Operating Standards*. Yreka, CA: Klamath National Forest.
- Lower Scott River Fire Safe Council. 2007. *Lower Scott River Fire Safe Council Community Wildfire Protection Plan*. Fort Jones, CA: Northern California Resource Center.